

REMARKS

Claims 1 to 45 are pending in the application.

Drawings

Examiner objects to the drawings because they do not show:

- a) “linear motor” (claim 17);
- b) “advancing drive” (claims 18-19);
- c) “hydraulic drive” or “ball screw” (claim 19);
- d) “two head stocks supported on the second guide system” (claim 21);
- e) “two head stocks drivable independently” (claim 22);
- f) “direct drive” (claim 30);
- g) “energy conduits underneath the covers” (claim 33);
- h) “energy conduits extend between guide rails of the first and second guide system” (claim 34).

In regard to a): the linear motors of claim 17 are shown as labeled boxes in newly added Fig. 1c.

In regard to b) and c): the advancing drive of claim 18 is now shown in newly added Figs. 1a and 1b as labeled boxes in the form of a hydraulic drive (claim 19) and a ball drive (claim 19).

In regard to d): the two head stocks are now shown to be supported on the second guide system in that the rails 21, 22 have been extended in Figs. 1a and 1b to the left end of the frame.

In regard to e): the headstocks are shown to be independently driven by having added the labeled boxes ball screw and hydraulic drive in Figs. 1a and 1b, respectively.

In regard to f): in newly added Fig. 1c a labeled box shows the “direct drive” schematically.

In regard to g) and h): Fig. 4 shows schematically energy conduits underneath the protective cover (50, 52, 54) between the guide rails 11, 12; 21, 22.

Reconsideration and withdrawal of the objection of the drawings pursuant to 37 CFR 1.83(a) are therefore respectfully requested.

Claim Rejections - 35 U.S.C. 112

Claims 1-36 stand rejected under 35 U.S.C. 112, 2nd paragraph, as being indefinite.

The antecedence problems pointed out by the examiner have been corrected. The suggested additional phrases for clarification purposes have been added in claims 12 and 13. A reference (i.e. horizontal plane) has been provided for "inclined" in claim 35.

Reconsideration and withdrawal of the rejection of the claims pursuant to 35 USC 112 are therefore respectfully requested.

Rejection under 35 U.S.C. 102

Claims 1-2, 4-9, 11, 13-20, 23-26, 28-29, 35-36 stand rejected under 35 U.S.C. 102(b) as being anticipated by *Yonemoto et al.* (US 5,313,694).

Claim 1 has been amended to define first of all the milling cutter as an internal milling cutter having a milling opening that surrounds the workpiece for milling (see Fig. 1 showing the opening in tool 4 surrounding the workpiece 7). Even though in applicant's opinion the term "internal cutter" is well known in the art as a cutter having an opening provided with radially inwardly projecting cutting means for milling external surfaces, it is now made perfectly clear how the cutter is configured and how it operates.

Yonemoto et al. clearly does not show such a milling tool with internal milling cutter and therefore cannot anticipate the invention as claimed.

Moreover, claim 1 has been amended by defining that the second guide system comprises a chuck for receiving a workpiece, the chuck having an axis of rotation about which a workpiece received in the chuck is rotatable. Machining of a workpiece received in the chuck by the at least one milling tool is carried out by axis interpolation of the linear axis X and the axis of rotation of the chuck. This feature is disclosed in the specification in paragraphs 0008 and 0029.

Such interpolation for machining is not disclosed or suggested in the cited reference *Yonemoto et al.*

Reconsideration and withdrawal of the rejection of the claims 1-2, 4-9, 11, 13-20, 23-26, 28-29, 35-36 pursuant to 35 USC 102 are therefore respectfully requested.

Claims 1-2, 4-9, 11, 13, 16-18, 20, 23-25, 28-29, 31-32, 35 stand rejected under 35 U.S.C. 102(b) as being anticipated by *EP 442542*.

The added feature of claim 1, according to which machining of a workpiece received in the chuck by the at least one milling tool is carried out by axis interpolation of the linear axis X and the axis of rotation of the chuck, is not disclosed or suggested by *EP 442542*.

Claims 1-2, 4-7, 14-27, 35 stand rejected under 35 U.S.C. 102(b) as being anticipated by *Yamade et al.* (US 4,305,689).

Claim 1 as amended defines a machine for machining workpieces that comprises at least one milling tool with an internal milling cutter having a milling opening surrounding a workpiece for milling an outer surface of a workpiece. The machine has a first guide system and a second guide system parallel to and spaced from the first guide system. The first guide system comprises at least one compound slide having a slide part, wherein the at least one compound slide is moveable in a longitudinal direction of the first guide system and wherein the slide part is moveable transversely to the longitudinal direction on linear axis X. The at least one milling tool is secured on the slide part. The second guide system comprises a chuck for receiving a workpiece, the chuck having an axis of rotation about which a workpiece received in the chuck is rotatable. Machining of a workpiece received in the chuck by the at least one milling tool is carried out by axis interpolation of the linear axis X and the axis of rotation of the chuck.

The examiner refers to the individual “rails” on either side of the bed 1 (Fig. 3 of *Yamade et al.*) as first and second guide systems. However, the rails define only a single guide system on which the tool guide bodies 2 each having a tool support 4 are moved. A second guide system having a chuck and being positioned parallel and spaced apart from the first guide system is not provided. The chucks are mounted on spindle heads 14 fixedly secured to columns 30 that are mounted on both ends of the bed 1 (see col. 2, lines 66, to col. 3, lines 4). A second parallel guide system for moving the chucks that is spaced from the first guide system is not provided.

Reconsideration and withdrawal of the rejection of the claims 1-2, 4-7, 14-27, 35 pursuant to 35 USC 102 are therefore respectfully requested.

Rejection under 35 U.S.C. 103

Claims 3, 10, 12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Yonemoto et al.* (US 5,313,694) and *Luther et al.* (US 4,730,945).

Luther is cited to show roller bearings guide shoes. Neither *Yonemoto et al.* nor *Luther et al.* show an internal milling cutter as defined in claim 1. *Luther et al.* also does not disclose interpolation as claimed in claim 1. Therefore, the combination of *Yonemoto et al.* and *Luther et al.* cannot make obvious claim 1 and its dependent claims.

Claims 3, 10, 12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *EP 442 542* and *Luther et al. (US 4,730,945)*.

The feature of claim 1, according to which machining of a workpiece received in the chuck by the at least one milling tool is carried out by axis interpolation of the linear axis X and the axis of rotation of the chuck, is not disclosed or suggested by *EP 442542*. *Luther et al.* also does not disclose or teach anything in regard to interpolation. Therefore, the combination of *EP 442 542* and *Luther et al.* cannot make obvious claim 1 and its dependent claims.

Claim 3 stands rejected under 35 U.S.C. 103(a) as being unpatentable over *Yamada et al. (US 4,305,689)* and *Luther et al. (US 4,730,945)*.

Yamada et al. do not define a second guide system having a chuck and being positioned parallel and spaced apart from the first guide system. The chucks are mounted on spindle heads 14 fixedly secured to columns 30 that are mounted on both ends of the bed 1 (see col. 2, lines 66, to col. 3, lines 4). A second guide system for moving the chucks is not provided. *Luther et al.* does not disclose a second guide system as claimed in claim 1. Therefore, the combination of *Yamada et al.* and *Luther et al.* cannot make obvious claim 1 and its dependent claims.

Claim 30 stands rejected under 35 U.S.C. 103(a) as being unpatentable over *Yonemoto et al. (US 5,313,694)*.

Claim 30 stands rejected under 35 U.S.C. 103(a) as being unpatentable over *Yamada et al. (US 4,305,689)*.

Claims 19 and 30 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *EP 442542*.

Claims 19 and 30 are believed to be allowable as dependent claims of claim 1.

Claims 31-34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Yonemoto et al. (US 5,313,694)* and *Blank (US 5,807,043)*.

Claims 33-34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *EP 442542* and *Blank (US 5,807,043)*.

Claims 31-34 rejected under 35 U.S.C. 103(a) as being unpatentable over *Yamada et al. (US 4,305,689)* and *Blank (US 5,807,043)*.

In regard to *Blank* the examiner states that in col. 1, lines 21-35, it is taught that

cables can be arranged on a way platform for being protected by a cover. It is respectfully submitted that the only disclosure is that hydraulic or electrical cables “often extend from the machine tool to a power source and can also be detrimentally affected by falling debris”. The location of such cables other their connection to the power source is not disclosed; there is no indication that the cables extend across the way platform - the cables can be suspended from above or extend in a direction transverse to the movement path along the way platform for a tool as shown in Fig. 1. No other mention of such cables is provided in the entire reference. In particular, there is no mention that the machine tool way cover is designed to cover the electrical or hydraulic cables. The way cover function is described in col. 3, lines 36-60, of *Blank* as keeping debris including coolant away from the way platform, in particular the screw conveyor - no mention of cables is made.

Claims 33 and 34 are therefore not obvious in view of the disclosure of *Blank*.

New Claims

Dependent **claims 37** and **45** define that the first guide system has two parallel guide rails and the first guide system has two of the at least one compound slide, said two of the at least one compound slide each being guided on said two parallel guide rails.

EP 442 542 discloses a guide systems for two compound slides that is comprised of four rails 2a, 2b, 2c, 2d. As shown in Figs. 4 and 6, the first tailstock 3 is guided on an outer guide rail 2a and an inner guide rail 2c; the second tailstock 4 is guided on the inner guide rail 2b and the outer guide rail 2d. Each tail stock has its own guide system with two rails. The saddle 8 of the machining unit 12 is guided on the same guide rails as the tailstock 4; the saddle 14 of the machining unit 18 is guided on the same guide rails as the tailstock 3. The two guide systems 2a, 2c; 2b, 2d are not spaced apart from one another - they are intermeshed. The inner ones of the guide rails 2b; 2c are positioned so as to neighbor the outer rails of the other guide system, respectively. Essentially the saddle 8 cannot pass the tailstock 8; the saddle 14 cannot pass the tailstock 4.

Yamade et al. does not show first and second guide systems that are parallel to one another but two systems perpendicular to one another (rails 3; 2a, 2b).

Dependent **claims 38** and **40** set forth that a steady rest is arranged on the second guide system and has a drive for moving the steady rest on the second guide system. A steady rest with its own drive arranged on a second guide system is not disclosed in any

of the cited references. *Yamade et al.* shows work rest means 13 connected to the tool supports 4. *EP 442 542* shows an antivibration unit 20 is mounted on the first saddle 8. *Yonemoto et al.* shows no steady rest.

Dependent **claims 39; 41; and 43** set forth that telescoping guide path covers are provided for protecting the first and second guide systems and that energy conduits are arranged underneath the telescoping guide path covers. Even though *Blank et al.* teach a telescoping way cover for machine tool, there is not disclosure as to arranging energy conduits such as hydraulic lines or electrical lines underneath the cover.

Claim 42 defines a machine for machining workpieces comprising at least one milling tool with an internal milling cutter having a milling opening surrounding a workpiece for milling an outer surface of a workpiece; a first guide system; and a second guide system parallel to and spaced apart from the first guide system. The first guide system comprises at least one compound slide having a slide part, wherein the at least one compound slide is moveable in a longitudinal direction of the first guide system and wherein the slide part is moveable transversely to the longitudinal direction. The at least one milling tool is secured on the slide part. A steady rest is arranged on the second guide system, the steady rest has a drive for moving the steady rest on the second guide system.

Such a configuration is not anticipated by or obvious in view of any of the cited references since a steady rest with its own drive arranged on a second guide system is not disclosed in any of the cited references. *Yamade et al.* shows work rest means 13 connected to the tool supports 4. *EP 442 542* shows an antivibration unit 20 is mounted on the first saddle 8. *Yonemoto et al.* shows no steady rest.

Claim 44 defines a machine for machining workpieces that comprises at least one milling tool with an internal milling cutter having a milling opening surrounding a workpiece for milling an outer surface of a workpiece; a first guide system; and a second guide system parallel to and spaced apart from the first guide system. The first guide system comprises at least one compound slide having a slide part, wherein the at least one compound slide is moveable in a longitudinal direction of the first guide system and wherein the slide part is moveable transversely to the longitudinal direction. The at least one milling tool is secured on the slide part. Telescoping guide path covers for protecting the first and second guide systems and energy conduits arranged underneath the

telescoping guide path covers.

Such a configuration is not anticipated by or obvious in view of any of the cited references since telescoping guide parts and energy conduits arranged underneath are not disclosed; see discussion above in regard to the *Blank* reference.

CONCLUSION

In view of the foregoing, it is submitted that this application is now in condition for allowance and such allowance is respectfully solicited.

Should the Examiner have any further objections or suggestions, the undersigned would appreciate a phone call or **e-mail** from the examiner to discuss appropriate amendments to place the application into condition for allowance.

Authorization is herewith given to charge any fees or any shortages in any fees required during prosecution of this application and not paid by other means to Patent and Trademark Office deposit account 50-1199.

Respectfully submitted on August 7, 2006,

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GEH

Encl.: new drawing sheet/s Figs. 1a, 1b, 1c, 4 (4 sheet/s)